

DRILL JIGS

To proceed with the milling of the left-hand boss, it is necessary to loosen the straps that hold the milling fixture in place, grasp the handles *H* and lift the milling attachment over to the left-hand side of the drill jig, where there are dowel-pins which accurately locate it in its correct relative position. The operation is repeated in the same way as for the right-hand boss, except that cutters *I* are used instead of cutters *G*. This milling attachment is never removed from the drill jig, except as explained, for milling the right- and left-hand bosses. The movable member *D* is moved up out of the way by spring pressure when a new crankcase is being placed in the jig. It would be possible, of course, to equip this drill jig with two milling attachments, one at each end, so that it would not be necessary to move the attachment from one side to the other, but as the changing of the fixture from one side to another was such a simple matter, it was not deemed advisable to go to the extra expense that this would involve.

Jig for Cross-drilling Pistons. — The jig shown in Fig. 23 is used successfully in cross-drilling pistons. The piston is drilled from both sides and not all the way through from one side, which is the common practice, especially when the work is done on some kind of lathe. It is not an easy matter to drill and ream a true hole by starting on one side of the piston, drilling through one boss, and then advancing the tool across the opening between the bosses and expecting the tool to secure a true start in the second boss.

This jig was made in the following manner to insure accuracy. A block of cast iron was milled square and the large hole rough-bored to within $\frac{1}{4}$ inch of size. This block was then milled across one end to receive the stop-bar *A*. After fitting the stop-bar, it was removed and the seat for the clamp-bar *B* was bored by using a fly-cutter in the milling machine. This clamp-bar was a piece of two-inch cold-rolled stock, milled flat to form a little more than a half round. During the succeeding boring and grinding operations the clamp-bar was held to its seat by the two screws *C* which had washers under their heads instead of the springs shown in the illustration. A piece